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Does parental anxiety cause biases in the processing of child-relevant threat material?

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Objectives. Anxiety leads to biases in processing personally relevant information. This study set out to examine whether anxious parents also experience biases in processing child-relevant material.

Design and Methods. Ninety parents acted as a control condition, or received a social anxiety or child-related anxiety induction. They completed a task examining attentional biases in relation to child-threat words and social-threat words, and a task examining ability to categorize emotion in children's faces and voices.

Results. There was a trend indicating group differences in attentional bias towards social-threat words, and this appears to have been only in the social anxiety condition, but not the child anxiety or control conditions. For child-threat words, attentional bias was present in the child anxiety condition, but not the social anxiety or control conditions.

Conclusions. In the emotion recognition task, there was no difference between the control and child anxiety conditions, but the social anxiety condition were more likely to erroneously label children's faces and voices as sad.

Practitioner Points

- Parents' anxious biases may spill over into their child's world.
- Anxious parents may have attentional biases towards threats in their children's environment.
- Anxious parents may over-attribute negative emotion to children.

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We know that anxiety runs in families (Micco *et al.*, 2009), and recent evidence suggests that a sizeable part of this relationship is due to genetic factors (Eley *et al.*, 2003). Instead, attention has turned to the environmental factors that put children of anxious parents at increased risk of developing anxiety.

Anxiety affects behaviour in many ways. Cognitive psychology has chronicled a number of robust effects that anxiety has on the processing of personal, threatening material (see Harvey, Watkins, Mansell & Shafran, 2004 for a review). These biases are, in turn, associated with behaviours (particularly avoidance) that maintain anxiety.

If anxiety has such a reliable effect on processing personal threat, and on subsequent behaviours, we wondered whether it might have an effect on processing of child-related threat, in individuals who were parents. Two exploratory studies suggest that this hypothesis is well founded. Lester, Field, Oliver and Cartwright-Hatton (2009) showed that parental anxiety was associated with negative interpretation biases about potentially threatening situations in both their own and their child's lives. Similarly, Gallagher and Cartwright-Hatton (2009) manipulated anxiety in parents, telling them that they would have to give an evaluated public speech. When in this anxious state, parents generated more negative outcomes for neutral child-related events, and predicted that these would be more distressing to themselves and their child. In the anxious state, they also interpreted child-related ambiguous scenarios as more threatening. These studies suggest that anxiety could influence processing of child-related threat. However, it is not clear what type of anxiety will trigger this effect. Gallagher and Cartwright-Hatton (2009) suggested that personal, non-child-related anxiety (in that case, social anxiety) could affect the processing of child-related threat even when this threat was of a different nature (some of the scenarios were of a non-social nature). The 'Current Concerns' hypothesis (Klinger, 1996) suggests that this ought not to be the case, and that biases should mostly occur in relation to stimuli that closely match current concerns. For example, a socially anxious person might demonstrate biases to social material, but not physical threat material. Someone with OCD might show biases to stimuli suggesting contamination, but not social-threat material. However, Gallagher and Cartwright-Hatton (2009) showed that inducing social concerns in parents was sufficient to trigger controlled processing biases in response to a variety of scenarios covering a range of content. We wanted to replicate this general effect and explore whether parental anxiety *focused on the child* might trigger specific threat-related biases in both automatic and controlled processing situations.

Therefore, we examined the impact of two types of parental anxiety, namely social anxiety, and child-related anxiety. There is already evidence that social anxiety can trigger biases in processing child-related threat (Gallagher & Cartwright-Hatton, 2009). Social anxiety is a common experience and, therefore, it would be useful to understand its impact on processing child-related threat. Also, it is amenable to manipulation (e.g. Mansell, Clark, Ehlers & Chen, 1999; Winton, Clark & Edelmann, 1995). The second type of anxiety was anxiety about one's own child. This was also to be manipulated in the laboratory.

In this study, we examined two well-established anxiety-based processing biases, each of which, we reasoned, might operate in anxious parents. First, we examined attentional bias to child-related threat. One well-established method for examining this is the dot-probe task (MacLeod, Mathews & Tata, 1986). In its simplest form, two stimuli (one threatening, one neutral) appear briefly on a screen. They then disappear and one is replaced by a dot, to which the participant responds by pressing a key. Speed at responding to the dot when it appears in the location of the threatening stimulus, and in the location of the neutral stimulus, indicate where the participant's attention was directed when the dot appeared. So, if a participant responds rapidly when the dot

appears behind threat stimuli, but slowly when behind neutral stimuli, this suggests that his/her attention was directed towards the threatening material. Dot-probes are widely used and have been harnessed to demonstrate attentional vigilance (or sometimes avoidance) by anxious people, using a range of threatening stimuli (e.g. Harvey *et al.*, 2004, p; for a review). Of particular relevance to this work, dot-probe studies that have employed social-threat words have shown that socially anxious participants show a significant attentional bias to those words (Asmundson & Stein, 1994; Musa, Lépine, Clark, Mansell & Ehlers, 2003).

We hypothesized that parents in the social anxiety condition would display an attentional bias in relation to social-threat words, and that parents in the child anxiety condition would show a bias only to child-threat words. We also wished to explore whether there would be a bias for social-threat words in the child anxiety condition, or a bias in the social anxiety condition for child-threat words. We expected no biases in the control condition to either social- or child-threat words.

Second, we were interested in parents' ability to categorize children's emotions. The ability to correctly identify emotion in others is an important skill for anyone, but it is particularly important for parents to be able to identify their children's emotions. If a parent is to respond sensitively to their child, giving just the right level of support, they must determine which emotion is being experienced, and at what level. A parent who fails to identify distress may fail to respond adequately, and if this failure is consistent, a predisposed child may come to suffer anxiety. Similarly, parents who over-identify negative emotion in their children are likely to engage in overprotective behaviours, which have been linked with the development of anxiety (e.g. McKay, Storch, McLeod, Wood & Avny, 2011 for a review).

Recognition of emotion in others is a complex task, and is subject to a range of biases, which can be triggered by a host of psychological phenomena. Most notably, it appears that anxiety has a deleterious impact on the ability to identify emotion in faces. In particular, the socially anxious are more likely to assign negative emotions to faces than less socially anxious people (Coles, Heimberg & Schofield, 2008; Garner, Baldwin, Bradley & Mogg, 2009; Joormann & Gotlib, 2006; Richards *et al.*, 2002; Winton *et al.*, 1995). A similar effect is apparent for trait anxiety, with anxious individuals more likely to identify fear in faces than other participants (Surcinelli, Codispoti, Montebarocci, Rossi & Baldaro, 2006). Since biases in emotion recognition have been associated with both social and trait anxiety, we hypothesized that parents who were experiencing anxiety ('social anxiety' and 'child anxiety') would be more likely to erroneously assign faces and voices to negative emotion categories.

Method

Ethical approval for this research was awarded by the University of xxx, School of Psychological Sciences Research Ethics Committee.

Participants

Ninety English-speaking parents (of a child aged 6–10, 80 female, all from separate families) were recruited using advertisements around a University, e-mails to staff and students and leaflets to schools. The sample was aged 24–46 years (M = 39.3). 87.7% described themselves as white British, 2.2% as Black Caribbean, 2.2% as Black African,

2.2% as Pakistani, 1.1% as Chinese, 1.1% as Asian and 3.3% as Other Children were not present. Participants were reimbursed £10 (Approx US$15) against expenses.

Measures

Participants completed a demographic questionnaire and the Spielberger Trait Anxiety Inventory (Spielberger, [illegible]). The Spielberger Trait Anxiety Inventory (STAI) has been used extensively in research with non-clinical populations, and has excellent psychometric properties.

The diagnostic analysis of non-verbal accuracy-2 (Nowicki & Duke, 1994)

The DANVA was employed as a measure of emotion recognition. This computerized task has adult and child stimuli sections, but only the child section was used here. This has two subscales: the faces subscale was completed first, followed directly by the paralanguage (voice) subscale. Both the faces and voices sections are widely used and reported to be highly reliable.

Child faces. This consists of 24 photographs of child facial expressions; 12 female and 12 male, showing an equal number of happy, sad, angry, and fearful faces. Each is shown on screen for 2 s, after which the participant assigns the face into one of four forced-choice categories by clicking a box corresponding to happy, sad, angry, or fearful.

Child paralanguage. This is composed of 24 spoken segments; 12 spoken by a female and 12 by a male child actor. Each consists of a child speaking the sentence 'I'm going out of the room now, but I'll be back later', with a happy, sad, angry, or fearful expression. Participants are asked to assign each segment into one of four forced-choice categories: happy, sad, angry, and fearful.

Dot-probe

The dot-probe was employed as a measure of selective attention in response to threatening words. The task comprised six practice trials, followed by 120 test trials. At the start of each trial, a cross appeared centrally on the screen for 500 ms. This disappeared, and an uppercase word-pair then appeared for 500 ms, one to the left of the screen, and one to the right. Twenty-five milliseconds after these words disappeared, a dot-probe replaced one word and remained until the participant depressed the spacebar. The task employed 120 word pairs. For 15 of these, the pair consisted of a neutral word and a social-threat word. For a further 15 pairs, a neutral word was paired with a child-threat word. The threat words were paired with neutral words that were chosen to be of similar length and frequency in the English language. The remaining pairs consisted of neutral words, which were used as filler items. The dot-probe appeared after all pairs that contained a child- or social-threat word, and after a randomly selected 30 neutral pairs. The position of the probe was random, approximately half the time behind the threat-word and half the time behind the neutral-word. The position of the threat-word was also randomized, with approximately equal numbers in each position (left and right).

Procedure

The study was explained to parents, and once informed consent was obtained, they completed the demographic measure and the STAI. They then rated their current level of anxiety on a 1–10 Subjective Units of Distress (SUD) Scale.

The study employed three conditions: control, child anxiety, and social anxiety. Participants were randomly assigned to one condition, and received the appropriate manipulation:

Child anxiety condition

Participants looked at four photographs of children in potentially threatening situations: a child lying injured at the bottom of stairs; a child alone, eating pills from a bottle; a child lying in the road having been knocked off his bicycle; a close-up photograph of a child with a badly bruised and cut face. They were asked to select the picture that worried them most, then to then imagine their child in that situation and to describe what they would be thinking and feeling.

Social anxiety condition

Participants were told (untruthfully) that they would be asked to give a video-recorded 3 min presentation at the end of the study, and psychologists would later scrutinize this. They were then asked what they thought and felt about this.

Control condition

Participants were asked to study five pixilated photographs of buildings and rate each for how aesthetically pleasing they found it. They were then asked to choose one photograph and to say what it made them think and feel.

Participants then rated their current level of anxiety on a SUD Scale.

All participants then completed either the dot-probe or the DANVA (counterbalanced within condition) and then received a top-up of the anxiety manipulation as follows:

Child anxiety condition

Participants looked again at the picture they chose previously and thought about how this made them feel.

Social anxiety condition

The experimenter spent a few minutes setting up the video-camera and asking the participant for their 'best angle'.

Control condition

Participants saw a further two photographs of buildings and rated them as before.

Participants then rated their current level of anxiety on a SUD Scale.

Participants then completed the second task (either the dot-probe or the DANVA, depending on what they had completed earlier).

Participants were then debriefed, thanked, and reimbursed expenses.

Results

A Chi-square test examined whether there were any significant differences between the three conditions on key demographic variables: relationship to child (mother/father); finances; and qualifications. The was no significant difference between the conditions in relationship to child and finances (relationship: $X^2(1, N = 90) = 3.67, p < .160$; finances: $X^2(2, N = 90) = 4.52, p < .340$). However, there was a significant difference between the conditions in qualifications, $X^2(4, N = 90) = 16.72, p < .033$, with participants in the social anxiety condition reporting higher educational qualifications than those in the other conditions.

To examine baseline trait anxiety levels in the three conditions, a one-way ANOVA with STAI as dependent variable was computed. This showed that there was no significant difference between the conditions[1] ($F_{(2)} = 2.702, p < .073$).

Manipulation Check

To check whether the manipulations were effective, SUD ratings at three points (pre-manipulation; post-first manipulation; post-top-up manipulation) were compared across condition. A one-way ANOVA showed no difference among the conditions at Time 1 (pre-manipulation) $F_{(2,87)} = .259, p = .772$. A second one-way ANOVA indicated a difference among the conditions at Time 2 (post-first manipulation) $F_{(2,87)} = 34.1, p < .001$. Post-hoc Bonferroni analyses indicated a significant difference between the control and social anxiety conditions ($p < .001$) and the control and child anxiety conditions ($p < .001$), but no significant difference between the child and social anxiety conditions ($p = 1.0$). A third one-way ANOVA indicated a difference among the conditions at Time 2 (post-top-up manipulation) $F_{(2,87)} = 30.2, p < .001$. Post-hoc Bonferroni analyses indicated a significant difference between the control and social anxiety conditions ($p < .001$) and the control and child anxiety conditions ($p < .001$), but no significant difference between the child and social anxiety conditions ($p = .651$). That is, all conditions reported similar anxiety pre-manipulation, but after the first manipulation, the social anxiety and child anxiety groups were substantially more anxious than the control condition. This pattern persisted after the top-up manipulation. These data are displayed in Figure 1.

Experiment One Results[2]

The analysis for the dot-probe task was based on reaction time responses to probes when they appeared in the same location as threat words (congruent trials), in comparison to when they appeared in a different location to threat words (incongruent trials). Only reaction times after threat-neutral pairs were examined. For each participant, outliers were removed by excluding detection latencies that fell outside two standard deviations of their mean score.

[1] *However, mean STAI score for the child anxiety group (Mean = 32.4, SD = 6.9) did appear slightly lower than for the control (Mean = 35.8, SD = 7.6) and social anxiety group (Mean = 35.3, SD = 7.9). Therefore, all appropriate hypothesis-testing analyses were subsequently re-computed, using STAI as a covariate. In each case, the pattern of results with STAI as covariate was identical to those without STAI as covariate.*

[2] *ANOVAs were subsequently recomputed covarying for Spielberger trait anxiety score. The pattern of results was identical to those reported above*

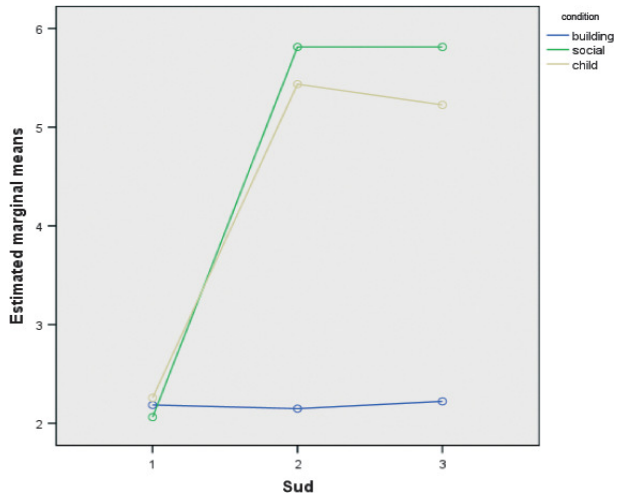

Figure 1. Subjective Units of Distress at pre-manipulation, post-first manipulation, and post-top-up manipulation, for each condition.

For each participant, an attentional bias score for child-threat words was calculated by subtracting mean reaction time for congruent trials from that for incongruent trials; a positive score indicates a bias towards these words, and a negative score indicates a bias away from these words. This was repeated for social-threat words to give an attentional bias score for these words.

These two attentional bias scores were each subjected to one-way ANOVA (with condition as grouping variable) to examine the effect of anxiety manipulation on attentional bias to the child-threat words and the social-threat words.

First, an ANOVA, with attentional bias to child-threat words as dependent variable, was computed. This showed a significant effect of condition ($F_{(2,87)} = 13.18, p < .001$). Post-hoc one-sample t-tests (two tailed) were then computed to determine the locus of any attentional bias. For those in the control condition, and in the social anxiety condition, there was no significant attentional bias to child-threat words (control condition [$t_{(26)} = -0.46, p = .619$]; social anxiety condition [$t_{(31)} = 1.18, p = .248$]). In the child anxiety condition, however, attentional bias scores towards child-threat words differed significantly from zero, indicating significant attentional bias to these words ($t_{(30)} = 5.72$, $p < .001$). These results are presented in Figure 2a.

A second ANOVA, with attentional bias scores to social-threat words as the dependent variable, was computed. This showed a main effect of condition that narrowly missed the conventionally accepted significance level ($F_{(2,87)} = 3.03, p = .053$). Since the effect was as hypothesized, and there was a strong trend suggesting attentional bias, three one-sample t-tests (two-tailed) were computed to determine its potential locus. Attentional bias scores in the control and child anxiety conditions did not differ significantly from zero, indicating no attentional bias to social-threat words in these participants (control condition [$t_{(26)} = -0.84, p = .409$]; child anxiety condition [$t_{(30)} = -0.78, p = .443$]). However, in the social anxiety condition, attentional bias scores for social-threat words did differ significantly from zero, suggesting attentional bias for these words ($t_{(31)} = 2.14$, $p = .04$). These results are presented in Figure 2b.

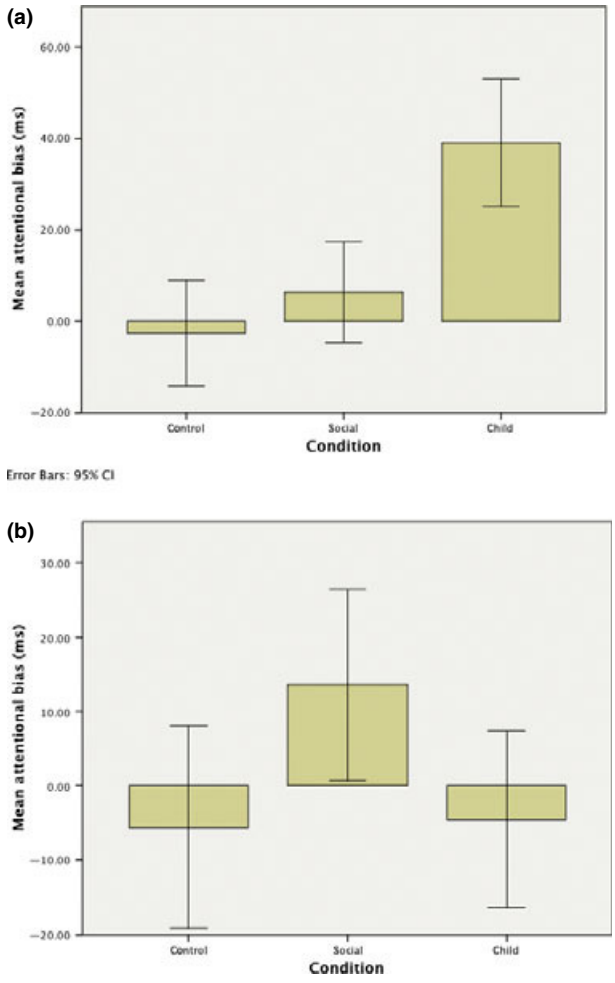

Figure 2. Attentional bias to child-threat and social-threat words, by condition. (a) Attentional bias to child-threat words (in milliseconds), by condition. (b) Attentional bias to social-threat words (in milliseconds), by condition.

Experiment One Discussion

As predicted, parents in the child anxiety manipulation condition showed an attentional bias towards child-threat words. However, they did not demonstrate a bias towards social-threat words. Similarly, there was a trend for attentional bias towards social-threat words for those in the social anxiety condition but not for those in the other conditions.

So, it seems that a parent who is experiencing social anxiety need not experience increases in attending to threat in their child's world, (unless, perhaps, their child is facing a social threat). It seems, therefore, that in this situation at least, and in line with the 'current concerns' hypothesis (Klinger, 1996), the type of parental anxiety must be closely allied with the threat material for an attentional bias to emerge.

Experiment Two Results[3]

To determine whether parents in the three conditions differed in their ability to identify emotions in children's faces and voices, ten Kruskal–Wallis ANOVAs were computed (non-parametric tests were employed as several variables were non-normally distributed). Dependent variables were as follows: total errors in classifying faces; total errors classifying voices; number of (a) faces and (b) voices that were incorrectly identified as (i) *fearful*; (ii) *angry*; (iii) *sad;* and (iv) *happy*. See Table to control the risk of type 1 error from multiple comparisons, the critical p adopted was 0.005. Table 1 shows the conditions differed significantly in how often participants incorrectly identified voices and faces as 'sad' but not in how often they incorrectly identified them as 'fearful', 'happy', or 'angry'.

To determine the locus of these differences, a series of Mann–Whitney U-tests were computed. These showed the difference lay between the social and the other conditions for both sad voices (social vs. child condition, $z = 2.72$, $p = .006$ (trend only); social vs. control condition, $z = -2.96$, $p = .003$) and sad faces (social vs. child condition, $z = -3.85$, $p < .001$; social v control condition, $z = -3.79$, $p < .001$). The control and child conditions did not differ significantly on faces or voices.

Experiment Two Discussion

Parents who are in a socially anxious state appear to have biases in identifying sadness in faces and voices of children. These results are largely in line with the extant literature, where socially anxious patients, or participants induced to experience social anxiety, were more prone to identifying negative emotion in adult faces (Coles *et al.*, 2008; Garner *et al.*, 2009; Joormann & Gotlib, 2006; Richards *et al.*, 2002; Winton *et al.*, 1995).

Table 1. Numbers of faces and voices incorrectly identified as fearful, angry, happy, and sad, by condition.

	Control (Buildings) Condition			Social Anxiety Condition			Child Anxiety Condition			
	N	Median	Range	*N*	Median	Range	*N*	Median	Range	*p*
Faces erroneously identified as follows:										
Fearful	27	1	6	32	0	5	31	1	5	0.080
Angry	27	2	5	32	1	5	31	2	5	0.169
Happy	27	0	4	32	1	4	31	1	4	0.489
Sad	27	0	1	32	2	4	31	0	2	<0.001
Total Errors	27	4	15	32	4	9	31	4	12	0.436
Voices erroneously identified as follows:										
Fearful	27	2	6	32	1	4	31	1	6	0.503
Angry	27	1	4	32	1	3	31	1	4	0.706
Happy	27	1	5	32	1	4	31	0	5	0.665
Sad	27	1	5	32	3	6	31	1	4	0.003
Total Errors	27	5	17	32	7	8	31	4	13	0.233

[3] *All analyses were subsequently recomputed parametrically, and again parametrically whilst covarying for Spielberger trait anxiety score. In each case, the pattern of results was identical to those reported above*

However, it should be noted that we did not ask parents to categorize emotion in their *own* children, which limits the conclusions that can be drawn. No deficit was apparent in parents who were experiencing child-related anxiety. Therefore, it seems that parents who are experiencing non-social anxiety need not experience biases in categorizing children's emotion.

The bias shown in the social anxiety condition appears to have been specific to identification of sadness. There was no increase in erroneous labelling of faces or voices as fearful or angry in any condition.

General Discussion

There is much evidence that anxiety causes biased processing of personally relevant material. The results of these two studies extend this understanding, and suggest that parental anxiety can also lead to biases in the processing of threat in the *child's* world. The dot-probe showed that when experiencing anxiety about their child, parents' attention was drawn to words that suggest threat to children (but not to social-threat words). The emotion recognition study indicated that when experiencing social anxiety, parents may have erroneously identified sadness in children's faces and voices. These results are partially in line with those of Gallagher and Cartwright-Hatton (2009), where induced parental anxiety was associated with biases in interpreting ambiguous child-related scenarios and predicting more negative outcomes for neutral child-related events and more child distress at these. The present results indicate that as well as an effect on controlled processing of threat (as in the Gallagher and Cartwright–Hatton (2009) study), anxiety has an effect on automatic processes.

These results, however, suggest that the impact of parental anxiety is quite specific. Although induced social anxiety had an impact on the processing of social-threat words (albeit at statistical trend level), these participants did not demonstrate an attentional bias for child-threat words. So, a parent who is experiencing anxiety about something in their own life, such as concern about an upcoming job interview, will not necessarily find that this impacts on their processing of threat in their child's world. It seems that the greatest impact of parental anxiety is experienced when the parent is actually anxious about the child.

Likewise, child-related anxiety was associated with biased processing of child-threat, but not social-threat words. It is not clear why social anxiety was associated with poor child emotion recognition, but child-related anxiety was not. It seems likely that emotion recognition tasks are more sensitive to social anxiety than to other forms of anxiety.

So, these results, and those of Gallagher and Cartwright-Hatton (2009) give a mixed picture the impact of non child-focused anxiety on the processing of child-related threat. Gallagher and Cartwright-Hatton (2009) suggested that induced parental social anxiety impacts on interpreting neutral and ambiguous child-related events and predicting the child's distress in these – tasks that relied largely on controlled processing. This study also suggests that induced parental social anxiety has an impact on automatic processing of children's emotion, but did not produce any evidence of a processing bias on child-related threat words.

Likewise, a mixed picture of the impact of anxiety focused on one's child emerges. Experiencing child-related anxiety increased biased processing of child-threat words, but had no impact on recognition of children's emotions.

We conclude, therefore, that the impact of parental anxiety on processing in the child's realm is complex. It is likely that many factors dictate whether an anxious parent (whether their concerns are child-related) will experience biases that spill into their

child's world. However, it seems likely that, in some circumstances at least, those biases will spill over.

A number of limitations in this study should be noted. In particular, for unknown reasons, participants in the social anxiety condition were better educated than those in the other conditions. However, it seems unlikely that this will have caused the differences identified here. Although this group was quick at identifying the probe in the attentional bias study, the crucial comparisons for the dot-probe were within group (i.e. between threat and non-threat words), rendering this difference unimportant. In the DANVA, errors for this group were equal to or higher than those in the other conditions, which is the opposite of what one would expect if higher general ability in this group were having an impact.

Second, this study can only draw conclusions about the effects of state anxiety, and not trait anxiety, on parental biases. Similarly, although the SUD measures indicated that anxiety increased in the manipulated groups, we cannot conclude that anxiety specifically about the child (child anxiety condition) or social anxiety (social anxiety condition) increased, as these were not measured. Therefore, we cannot conclude that the manipulations worked through priming of social/child anxiety. It is possible that merely exposing the groups to social- or child-related material caused the reported effects.

Third, it should be noted that the sample consisted largely of mothers, with just a few fathers able to participate. It is possible that the results are reflective more of processes in maternal cognition than of fathers, and, unfortunately, there were insufficient fathers to examine this possibility empirically.

Finally, participants' own children were not included in this study. Future research might include more personally relevant material, such as photographs of their own children, for more ecologically valid results.

In conclusion, these studies provide evidence that parental anxiety causes child-related threat-processing biases. Further research examining the causes and consequences of these biases is warranted. Assuming that these results are confirmed, it may be advisable to attempt modification of these parental biases in clinical contexts, using either standard CBT techniques, or newer bias-modification procedures. Any change in parental biases might be expected to have an impact on parenting behaviour, and potentially on children's subsequent anxious behaviour.

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Dear Author,
During the copy-editing of your paper, the following queries arose. Please respond to these by marking up your proofs with the necessary changes/additions. Please write your answers on the query sheet if there is insufficient space on the page proofs. Please write clearly and follow the conventions shown on the attached corrections sheet. If returning the proof by fax do not write too close to the paper's edge. Please remember that illegible mark-ups may delay publication.
Many thanks for your assistance.

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3	**AUTHOR: Please provide the publisher location for reference Harvey et al. (2004).**	
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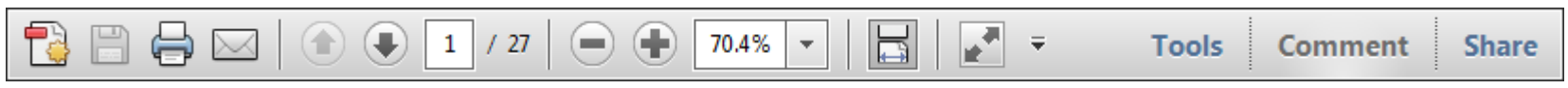
WILEY-BLACKWELL

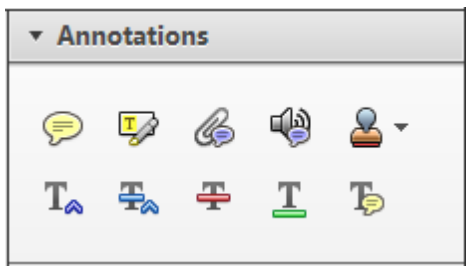
USING e-ANNOTATION TOOLS FOR ELECTRONIC PROOF CORRECTION

Required software to e-Annotate PDFs: Adobe Acrobat Professional or Adobe Reader (version 7.0 or above). (Note that this document uses screenshots from Adobe Reader X)
The latest version of Acrobat Reader can be downloaded for free at: http://get.adobe.com/uk/reader/

Once you have Acrobat Reader open on your computer, click on the Comment tab at the right of the toolbar:



This will open up a panel down the right side of the document. The majority of tools you will use for annotating your proof will be in the Annotations section, pictured opposite. We've picked out some of these tools below:

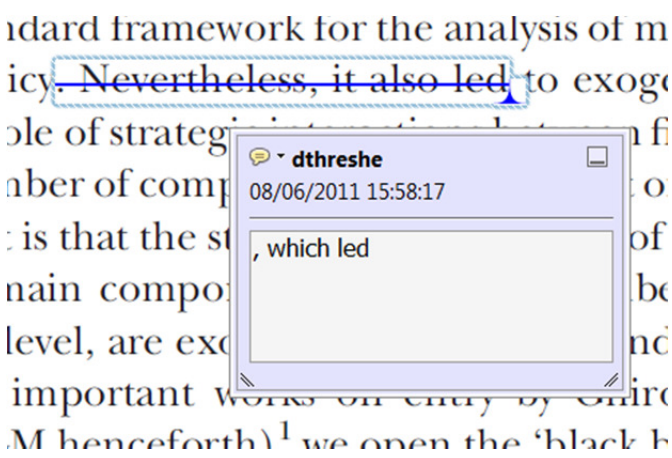


1. Replace (Ins) Tool – for replacing text.

Strikes a line through text and opens up a text box where replacement text can be entered.

How to use it

- Highlight a word or sentence.
- Click on the Replace (Ins) icon in the Annotations section.
- Type the replacement text into the blue box that appears.

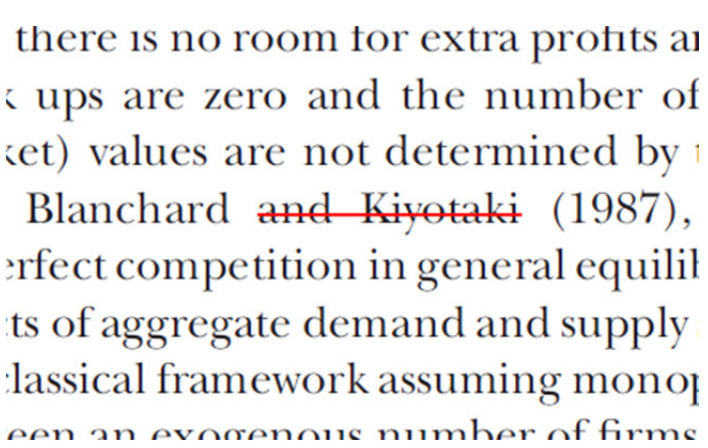


2. Strikethrough (Del) Tool – for deleting text.

Strikes a red line through text that is to be deleted.

How to use it

- Highlight a word or sentence.
- Click on the Strikethrough (Del) icon in the Annotations section.

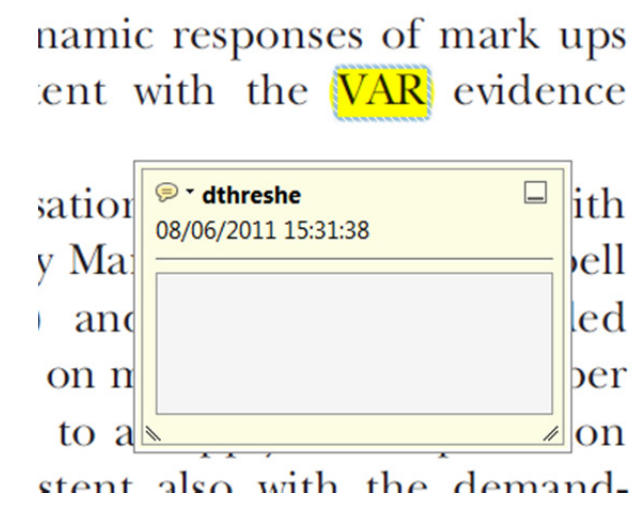


3. Add note to text Tool – for highlighting a section to be changed to bold or italic.

Highlights text in yellow and opens up a text box where comments can be entered.

How to use it

- Highlight the relevant section of text.
- Click on the Add note to text icon in the Annotations section.
- Type instruction on what should be changed regarding the text into the yellow box that appears.

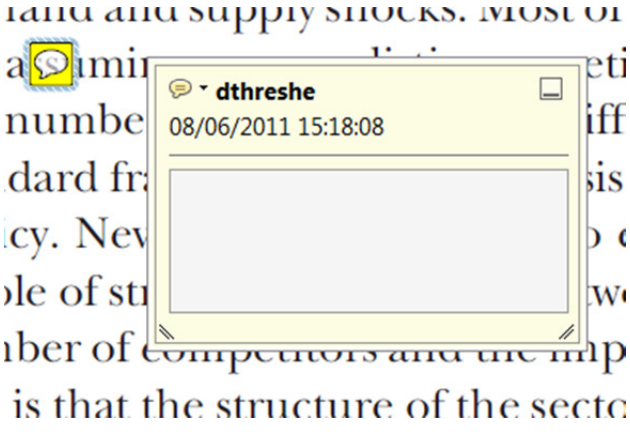


4. Add sticky note Tool – for making notes at specific points in the text.

Marks a point in the proof where a comment needs to be highlighted.

How to use it

- Click on the Add sticky note icon in the Annotations section.
- Click at the point in the proof where the comment should be inserted.
- Type the comment into the yellow box that appears.



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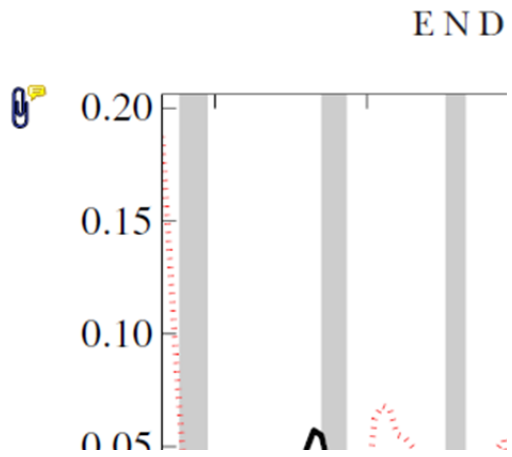
USING e-ANNOTATION TOOLS FOR ELECTRONIC PROOF CORRECTION

5. Attach File Tool – for inserting large amounts of text or replacement figures.

Inserts an icon linking to the attached file in the appropriate pace in the text.

How to use it

- Click on the Attach File icon in the Annotations section.
- Click on the proof to where you'd like the attached file to be linked.
- Select the file to be attached from your computer or network.
- Select the colour and type of icon that will appear in the proof. Click OK.

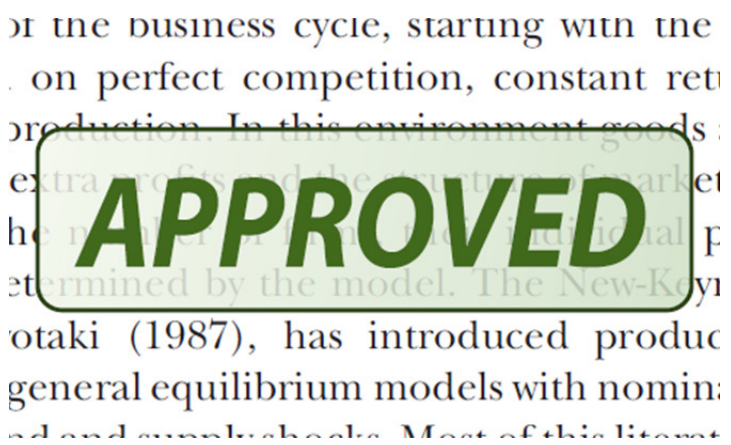


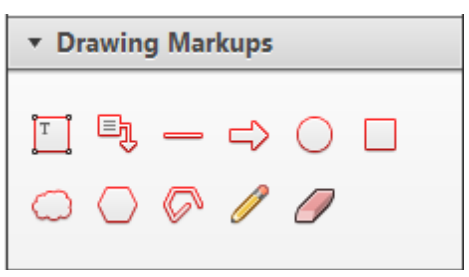
6. Add stamp Tool – for approving a proof if no corrections are required.

Inserts a selected stamp onto an appropriate place in the proof.

How to use it

- Click on the Add stamp icon in the Annotations section.
- Select the stamp you want to use. (The Approved stamp is usually available directly in the menu that appears).
- Click on the proof where you'd like the stamp to appear. (Where a proof is to be approved as it is, this would normally be on the first page).



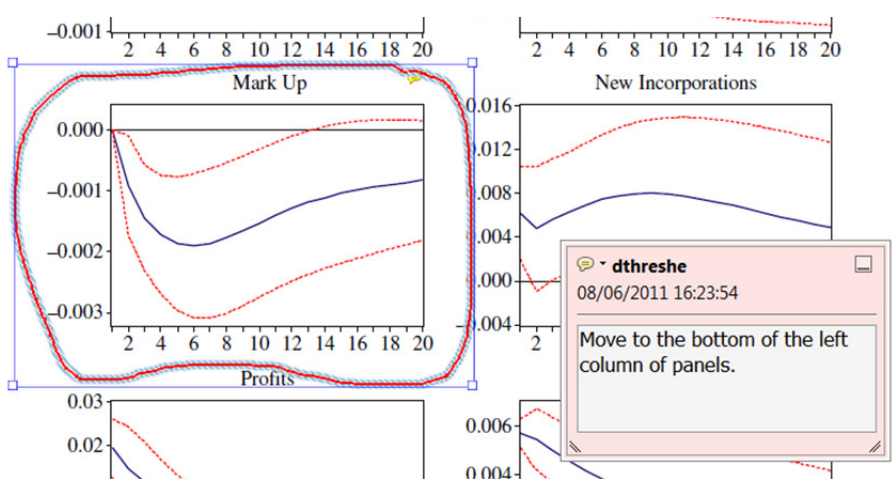


7. Drawing Markups Tools – for drawing shapes, lines and freeform annotations on proofs and commenting on these marks.

Allows shapes, lines and freeform annotations to be drawn on proofs and for comment to be made on these marks..

How to use it

- Click on one of the shapes in the Drawing Markups section.
- Click on the proof at the relevant point and draw the selected shape with the cursor.
- To add a comment to the drawn shape, move the cursor over the shape until an arrowhead appears.
- Double click on the shape and type any text in the red box that appears.



For further information on how to annotate proofs, click on the Help menu to reveal a list of further options: